At the indicated point set-up the equation using the definition of the derivative to find the slope of the curve at that point.

$$\lim_{x \to a} \frac{f(x) - f(a)}{x - a}$$

1. $y = x^2 - 4x$ at $x = 2$

2. $y = \dfrac{1}{x-1}$ at $x = 3$

3. $y = x^2 - 3x - 1$ at $x = 1$

4. $y = x^3 + 1$ at $x = 4$

At the indicated point set-up the equation using the definition of the derivative to find the slope of the curve at that point.

$$\lim_{h\to 0}\frac{f(x+h)-f(x)}{h}$$

1. $y = x^2 - 4x$ at $x = 2$

2. $y = \dfrac{1}{x-1}$ at $x = 3$

3. $y = x^2 - 3x - 1$ at $x = 1$

4. $y = x^3 + 1$ at $x = 4$

At the indicated point set-up the equation using the following definition of the derivative

$$\lim_{x \to a} \frac{f(x) - f(a)}{x - a}$$

then use the substitution **h = x – a** to put the derivative in the following form $\lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$

1. $y = x^2 - 4x$ at $x = 2$

2. $y = \frac{1}{x-1}$ at $x = 3$

3. $y = x^2 - 3x - 1$ at $x = 1$

4. $y = x^3 + 1$ at $x = 4$